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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,140	03/10/2004	Atsushi Hirota	118926	2066
25944	7590	10/19/2006	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			SOLOMON, LISA	
			ART UNIT	PAPER NUMBER
			2861	

DATE MAILED: 10/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/796,140

Applicant(s)

HIROTA, ATSUSHI

Examiner

Lisa M. Solomon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 16 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 9-12 is/are rejected.
- 7) ☒ Claim(s) 2-8 and 13-15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 4/1/04, 8/22/05, 7/5/06.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election without traverse of claims 1-15 in the reply filed on September 20, 2006 is acknowledged.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being obvious over Taira (6,969,158) in view of Sakaida (2003/0156166).

The applied references have a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer

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in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

In re claim 1, *Taira (158')* teaches *an ink-jet head comprising*: a passage unit (4, Fig. 5) that has a plurality of pressure chambers (9, Fig. 4) and a plurality of nozzles (8, Fig. 4-5) communicating with the respective pressure chambers (10, Fig. 5), an actuator unit (21, Fig. 5) that is adhered to the passage unit (4) and changes the volume of the pressure chambers (10) to thereby eject ink through the nozzles (8), and a cable member (50, Fig. 2) that supplies a drive signal to the actuator unit; wherein the actuator unit includes: a piezoelectric element (41, Fig. 9) sandwiched by a common electrode (34, Fig. 9) and a plurality of surface electrodes (35, Fig. 9) the plurality of surface electrodes (35) being formed on the piezoelectric element (41) at positions corresponding to the respective pressure chambers (10), a plurality of first lands (36, Fig. 8) formed on the piezoelectric element (41) to be connected to the respective surface electrodes (35), the first lands (36) having a higher height from a surface of the piezoelectric element (41) than that of the surface electrodes (35) and being connected to the cable member (50) [Column 4 lines 22-27; 43-46; 52-58, Column 6 lines 13-17, Column 10 lines 58-Column 11 line 2; 13-17]. *Taira (158')* does not teach a plurality of second lands formed on the piezoelectric element (41) to be spaced from the respective surface electrodes (35), the second lands having substantially the same height from the surface of the piezoelectric element (41) as that of the first lands (36).

*Sakaida (2003/0156166)* teaches a plurality of second lands spaced from the respective surface electrodes [See Fig. 9].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide a plurality of second lands spaced from the respective surface electrodes as taught by *Sakaida (2003/0156166)* to be formed on the piezoelectric element as taught by *Taira (158')* for the purposes of independently controlling surface electrodes [*Sakaida (2003/0156166)* Paragraph 71 lines 5-10].

Claims 9-10 and 12 is rejected under 35 U.S.C. 103(a) as being obvious over *Taira (6,969,158)*.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer

in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

In re claim 9, *Taira (158')* teaches each of the surface electrodes (35, Fig. 8) has a main electrode portion (35a, Fig. 8) opposing a corresponding one of the pressure chambers (10, Fig. 9) and a connecting portion (35b) connected to a corresponding one of the first lands (36, Fig. 8,9), the main electrode (35a) having a planar shape similar to that of the corresponding pressure chamber (10) [Column 10 line 58-Column 11 line 2].

In re claim 10, *Taira (158')* teaches the common electrode (34, Fig. 9) is kept at a constant potential and is formed to span the plurality of pressure chambers (10, Fig. 9), the common electrode (34) being disposed nearer to the pressure chambers (10) than the surface electrode (35) [Column 11 lines 13-17; 20-23].

In re claim 12, *Taira (158')* wherein the plurality of pressure chambers (10) are arranged in a matrix on a surface of the passage unit (4) [Column 6 lines 22-28, See also Fig. 4].

Claim 11 is rejected under 35 U.S.C. 103(a) as being obvious over Taira (6,969,158) in view of Sakaida (2003/0156166) and in further view of Koike et al. (2003/0025768).

The applied reference Taira (158') has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(I)(1) and § 706.02(I)(2).

In re claim 11, *Taira (158') in combination with Sakaida (2003/0156166) teaches the inkjet head according to claim 1. Taira (158') teaches the cable member is a flexible flat cable, the flexible flat cable being connected to the actuator unit, and the plurality of*

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first lands being connected to the respective terminals of the flexible flat cable [Column 3 lines 30-32, Column 10 line 58-Column 11 line 2; 5-7]. Taira (158') and Sakaida (2003/0156166) both do not teach the flexible flat cable has a wiring pattern and terminals formed thereon.

*Koike et al. (2003/0025768) teaches a flexible flat cable that has a wiring pattern and terminals formed thereon [Paragraph 51 lines 7-12, See also Fig. 2].*

It would have been obvious to one of ordinary skill in the art at that the time the invention was made to be motivated to provide a wiring pattern and terminals as taught by Koike et al. (2003/0025768) on the flexible flat cable taught by Taira (158') for the purposes of preventing any negative effects on the nozzle part of the inkjet head [Koike et al. (2003/0025768) Paragraph 51 lines 12-14].

#### ***Allowable Subject Matter***

3. Claims 2-8 and 13-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The following is a statement of reasons for the indication of allowable subject matter: In re claims 2-6, the prior art does not disclose or suggest the claimed "each of the surface electrodes is provided with a corresponding one of the first lands and a corresponding one of the second lands that make a pair" in combination with the remaining claim limitations.



In re claims 7-8, the prior art does not disclose or suggest the claimed "each of the surface electrodes is surrounded with two or more first lands and two or more second lands" in combination with the remaining claim limitations.

In re claims 13-14, the prior art does not disclose or suggest the claimed "the first lands and the second lands formed on the piezoelectric element are opposed to the wall portions" in combination with the remaining claim limitations.

In re claim 15, the prior art does not disclose or suggest the claimed "a first land and a second land that make a pair for each of the surface electrodes and are positioned on the piezoelectric element symmetrically with respect to a center of a corresponding one of the pressure chambers, both the first land and the second land opposing the wall portions" in combination with the remaining claim limitations.

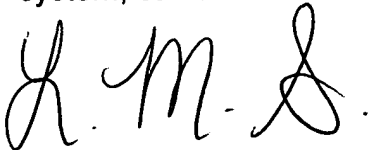
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lisa M. Solomon whose telephone number is (571) 272-1701. The examiner can normally be reached on 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vip Patel can be reached on (571) 272-2458. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Lisa M. Solomon  
Patent Examiner  
10/12/06



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